



Shark Landing Surveys at Madakkara Fishing Harbor

Introduction

Sharks are the top of the marine food chain and play an essential role in keeping ocean ecosystems healthy. By feeding on various prey, they help control the populations of other species and influence how marine life interacts. This balancing act supports biodiversity and ensures that habitats like coral reefs, seagrass beds, and open waters function properly. In this way, sharks contribute to the overall health of the ocean (Dulvy et al. 2021).

However, shark numbers are dropping around the world. The biggest reasons are overfishing which includes bycatch in small and large scales and also activities including illegal, unreported, and unregulated (IUU) fishing. At the same time, the global demand for shark fins, meat, oil, and other parts is growing creating more pressure on shark populations. Because sharks grow slowly, reproduce late in life, and reproduce a few young ones, they find it hard to recover once their numbers go down (Dulvy et al. 2021; Tyabji et al. 2021).

In India, sharks are regularly seen in catches brought to fishing harbours, but there is still very little detailed research on what kinds of sharks are being caught, how they are being fished, and how the trade works.

A recent study in the Andaman and Nicobar Islands found that many of the sharks being landed were young or female, which shows that current fishing practices may be unsustainable (Tyabji et al. 2021). Another study by Kizhakudan et al. (2024) points out that shark meat, oil, and skin are important sources of income and resources for many people living along the coast.

This report is focused on understanding which shark species are being caught, the fishing methods used, and how the shark trade supports local communities. The findings from our study glimpses at the extent of shark catches at Madakkara fishing harbour.

Methodology

The shark landing survey was conducted at Madakkara fishing harbor over a two-week period from 5 May to 17 May 2025.

Observations were made daily during the early morning landing hours, typically between 6:30 AM and 8:30 AM, when most fishing boats returned with their catch. During each visit, data were collected through direct observation of the landed catch such as- time the sharks were landed, the fishing gear used, how many sharks were caught, counting the number of individuals (abundance), their market prices,

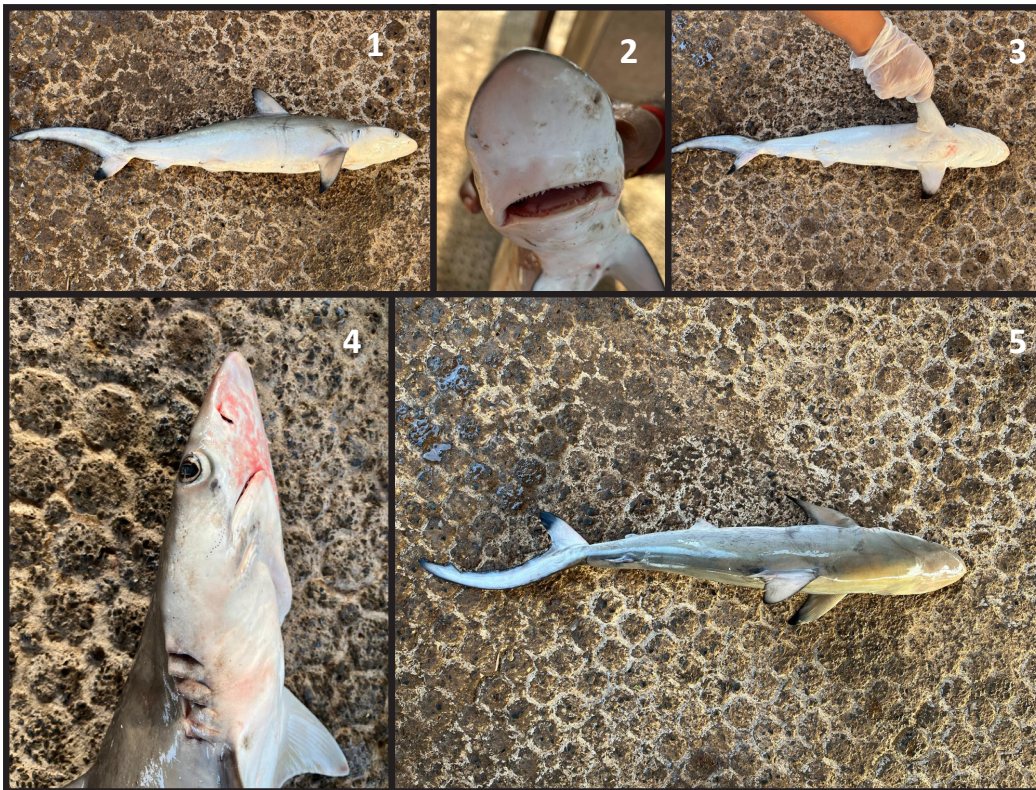


Image 1.
1—*Carcharhinus sorrah* (Spot-tail shark)
| 2–5—Collective images of shark's external morphological features like lateral, dorsal, frontal, mouth, and frontal eye views.
PC: Authors.

and where they were sold to Conversations with local fishers provided additional background on fishing practices and trade dynamics. The information was documented in a notebook, and photographs of landings were taken using a mobile camera for later verification. Shark species were identified from morphological features captured in photographs by Vishnu H., an elasmobranch researcher at University of Kerala.

Observation & Results

From Table 1, only one type of shark species, the Spot-tail shark *Carcharhinus sorrah* during the survey period was recorded. It was landed in early mornings from 05:30 to 8:30. According to the fishermen, these sharks were most frequently caught with 'net deep catch' by mechanised boats, where fishers generally went 100–300 km from shore and of depth 10 m. Number of the individuals ranged from 1–5

per day. Spot-tail sharks were either consumed locally, exported, or sold at auctions. The selling price at auctions is typically carried within ₹300–₹400/kg showing that there's a steady demand. A variety of other marine species were caught showing rich marine biodiversity but also highlighting that the fishing methods used are not species-specific. Sardines, Red snapper, Crab, Hilsa were other abundant catches. The fisheries at Madakkara focus on catching crab, squid, and mackerel (Image 2).

Bycatch species refers to marine animals that are unintentionally caught while fishing for a different target species. These are not the main species fishermen are aiming to catch, but they end up in the nets or lines anyway. Bycatch is often turned into fertilizer for farms or feed for fish in aquaculture. Image 3 shows the series of marine species caught as bycatch during the survey period.

Zooreach Activity Update



Image 2. Miscellaneous marine species observed from 6 May 2025 to 17 May 2025. 1—Silver Pomfret | 2—Mediterranean Spearfish | 3—Crab | 4—Squid | 5—Narrow-barred Spanish mackerel | 6—Sardine | 7—Red Snapper | 8—Silver Pomfret | 9—Mediterranean Spearfish | 10—Atlantic Tripletail | 11—Hilsa | 12—Sand lances | 13—Ray fish. PC: Authors

Spot-tail Shark *Carcharhinus sorrah*

Common Name: Spot-tail shark

Scientific Name: *Carcharhinus sorrah*

IUCN Conservation Status: Near Threatened on the IUCN Red List of Threatened Species

Habitat: Found in coastal and offshore waters, especially in tropical and subtropical regions.

Size: Typically grows up to 1.6 meters in length

Distinctive Features: Recognizable by the black tips on its fins and a noticeable black spot on the upper lobe of the tail fin.

Diet: Feeds on small fish, cephalopods, and crustaceans.

Importance: Often caught in fisheries for its meat and fins, making it vulnerable to overfishing.

Zooreach Activity Update

Table 1. Shark species, its abundance, use of fishing gears, and price sold in markets during survey period.

Date	Survey Duration in Market	Time of Landing	Shark Species Name	Total Length	Abundance	Fishing Gear and fishing boat used	Price (INR)	Sold to
05-05-2025	7:15–8:30	No fish landings were observed	Didn't record	Didn't record	Didn't record	Didn't record	Didn't record	Sold at harbor auction; consumed locally and exported to other states
06-05-2025	7:15–8:00	8:30 AM	<i>Carcharhinus sorrah</i>	60 cm	2 only	Net deep catch / Mechanised	300/kg	Sold at harbor auction; consumed locally and exported to other states
08-05-2025	6:30–8:00	7:00 AM	<i>Carcharhinus sorrah</i>	70 cm 56 cm	3–4	Net deep catch / Mechanised	400/kg	Sold at harbor auction; consumed locally and exported to other states
12-05-2025	6:30–8:00	6:30 AM	<i>Carcharhinus sorrah</i>	46cm 60 cm 44 cm	4–5	Net deep catch / Mechanised	400/kg	Sold at harbor auction; consumed locally and exported to other states
14-05-2025	6:30–8:00	6:30 AM	<i>Carcharhinus sorrah</i>	61cm 56 cm	3	Net deep catch / Mechanised	400/kg	Sold at harbor auction; consumed locally and exported to other states
17-05-2025	6:30–8:00	6:30 AM	<i>Carcharhinus sorrah</i>	59 cm 56 cm	3	Net deep catch / Mechanised	300/kg	Sold at harbor auction; consumed locally and exported to other states



Image 3. Species observed in bycatch piles (05 May–17 May 2025). PC: Authors

Zooreach Activity Update

Table 2. Miscellaneous observations in harbour (identified their names with help from local fishers).

Date of survey	Miscellaneous non-shark catches recorded in Harbor (Identified their names with help from local fishers.)
05 May 2025	Didn't record
06 May 2025	Silver Pomfret (Aavoli), Mediterranean Spearfish (Kattakomban), squid (Koontal), crab (Njandu) found in massive abundance
08 May 2025	Squid (Koontal), crab (Njandu), Narrow-barred Spanish Mackerel (Ayakoora), Green Lipped Mussel (Kallumakkaya), Striped Bonito (Chooru).
12 May 2025	Silver Pomfret (Aavoli), sardines (Mathi), squid (Koontal), Red Snapper (Chempalli) were found were in massive abundance
14 May 2025	Mediterranean Spearfish (Kattakomban), Atlantic Tripletail (Kalava), Silver Pomfret (Aavoli), Striped Bonito (Chooru), crab (Njandu), hilsa (Paluva) etc. found in massive abundance.
17 May 2025	Sand lances (Natholi), crab (Njandu), hilsa (Paluva), and ray fish (Thirandi).

Reproduction: Viviparous (gives birth to young ones), with litters of 1–8 pups.

4. Takeaways

- Using visual identification and learning from local fishermen is very useful.
- The type of fishing gear and how deep it goes affects which species are caught.
- Talking to fishermen gives important background information on fishing that helps to understand the ecology of sharks better.

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References

- Kizhakudan, S.J., K. Akhilesh, S. Thomas, M. Menon, S. Sen, P.U. Zacharia & R.K. Pradhan (2024).** *A study of shark and ray non-fin commodities in India.* Food & Agriculture Organisation.
- IUCN (2021).** *Carcharhinus sorrah: The IUCN Red List of Threatened Species.* <https://dx.doi.org/10.2305/IUCN.UK.2021-2.RLTS.T161376A173434793.en>. Accessed on 02 September 2025.
- Dulvy, N.K., N. Pacoureau, C.L. Rigby, R.A. Pollom, R.W. Jabado, D.A. Ebert & C.A. Simpfendorfer (2021).** Overfishing drives over one-third of all sharks and rays toward a global extinction crisis. *Current Biology* 31(21): 4773–4787.
- Tyabji, Z., T. Wagh, V. Patankar, R.W. Jabado & D. Sutaria (2020).** Catch composition and life history characteristics of sharks and rays (Elasmobranchii) landed in the Andaman and Nicobar Islands, India. *PLoS one* 15(10): e0231069.
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